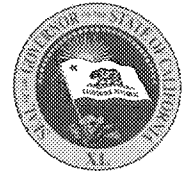




SANDRA SHEWRY, MPH, MSW  
Acting Director

State of California—Health and Human Services Agency  
California Department of Public Health



GAVIN NEWSOM  
Governor

**DATE:** August 21, 2020

**TO:** Juanita Bacey  
Project Manager  
Brownfields and Environmental Restoration Program  
Department of Toxic Substances Control  
700 Heinz Avenue  
Berkeley, CA 94710-2721

**FROM:** Sheetal Singh  
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Emergency, Restoration & Waste Management Section  
Environmental Management Branch (EMB)  
California Department of Public Health (CDPH)  
1725 23rd Street, Suite 110  
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**SUB:** CDPH-EMB review of *Draft Radiological Scoping Survey Report Parcel F Structures—Submarine Pens*, Hunters Point Naval Shipyard, San Francisco, CA. Received June 2, 2020.

As submitted by the California Department of Toxic Substances Control (DTSC), Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) reviewed the *Draft Radiological Scoping Survey Report Parcel F Structures—Submarine Pens* Hunters Point Naval Shipyard, San Francisco for radiological issues. This review was performed in support of the Interagency Agreement between DTSC and CDPH.

If you need further assistance, please contact Terry Han of my staff at (916) 210-8531 or via email at [Terry.Han@cdph.ca.gov](mailto:Terry.Han@cdph.ca.gov).



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The Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) appreciates the opportunity to review the submitted document, *Draft Radiological Scoping Survey Report Parcel F Structures—Submarine Pens*, Hunters Point Naval Shipyard, San Francisco, CA. Received June 2, 2020.

**General Comments:**

1. Please note that CDPH-EMB uses the following criteria in Title 17 of the California Code of Regulations, Section 30256(k) [17 CCR § 20256(k)] to base its evaluation for issuing a Radiological Unrestricted Release Recommendation (RURR):
  - (1) Radioactive material has been properly disposed:
  - (2) Reasonable effort has been made to eliminate residual radioactive contamination, if present, and;
  - (3) A radiation survey has been performed which demonstrates that the premises are suitable to release for unrestricted use; or other information submitted by the licensee is sufficient that the premises are suitable for release for unrestricted use.

In practice this means employing the decision making process outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM, NRC et al, 1997), which includes establishing a reference background area for each of the materials to remain in situ. These reference background measurements are then compared to survey units (SUs).
2. CDPH-EMB will not consider the alpha scan survey data presented in this scoping report for evaluating any unrestricted release request from Navy due to the following reasons:
  - a. The minimum detection concentration (MDC) of alpha scan survey instruments exceeds the release criteria (Table 4).
  - b. The alpha scan was limited (25% of the accessible surface in survey units); hence the additional alpha/beta statics measurements did not provide sufficient statistical support, in either radiation counts or data points, to supplement the alpha scan surveys.

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**Specific Comments:**

3. **Section 3.4.4 “Alpha/Beta Scan Surveys”, Page 3-6, Paragraph 1, Sentence 5:**

“This measurement achieved the same level of detection as slow scanning”. Please provide explanation or calculation on why the six-second static counts achieved the same level of detection as the design survey scan speed of 0.25 centimeters per second.

4. **Section 3.4.4 “Alpha/Beta Scan Surveys”, Page 3-8, Paragraph 2, Sentence 2:**

“However, these detectors could not detect alpha radiation at levels below the release criteria.” Please see general comment #2. For any future scan or static measurement, CDPH strongly recommends adjusting parameters so the MDC value of the field instruments does not exceed the release criteria.

5. **Section 4.3.1 “Reference Background Areas”, Page 4-4, Paragraph 1, Sentences 1:**

“A concrete pad in Parcel C was used as the RBA for alpha/beta measurements.” Please provide the reference data for alpha/beta scan measurement (i.e. 6-second static counts). CDPH strongly recommends Navy to obtain reference background data with the same input parameters (for example, but not limited to, the count time of measurement) as the measurements planned in a survey unit. This practice would ensure a relevant comparison can be made between the survey and reference area data.

6. **Section 4.3.2 “Gamma Scan Surveys”, Page 4-5, Paragraph 1, Last Two Sentences:**

“Once the entire length of the vertical surface was surveyed, the detector [3x3 NaI detector] was lowered approximately 30 cm (12 inches) to continue the gamma scan of the vertical surface at the new height. This process was repeated until the entire vertical surface was scanned.” Please explain how the whole vertical wall surface can be properly scanned if the distance (9 inches) between each pass of Gamma scan on the vertical wall is 3 times greater than the width of the detector (3 inches).

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7. **Section 6.1.3 “In Situ Gamma Spectroscopy Results”, Page 6-3, Paragraph 1, Sentence 4:**

“The spectral analysis did not identify activity statistically above background.” Please explain how this conclusion was reached, as most of the counts in Ra-226 region of interests (ROIs) in these spectral analyses (sample SU3-GB9 to SU3-GB13) are 10% to 77% higher than the reference background area critical value.

8. **Section 6.1.3 “In Situ Gamma Spectroscopy Results”, Page 6-3, Paragraph 1, Sentence 5:**

“The most likely reason that these measurements exceeded the gamma static IL is due to geometry effects of natural radioactivity entering the NaI detector from the two perpendicular surfaces simultaneously.” Please provide explanation on how this conclusion of geometry effect was reached for these gamma static measurements on a vertical wall. Please provide pictures of the measurement locations or any other supporting material for the conclusion of this geometry effect.

Furthermore, please explain why there were no concrete samples taken from the locations with elevated gamma measurements, for laboratory analysis.

9. **Section 6.4.5 “Alpha/Beta Scan Measurement Results Data Quality Review”, Page 6-12, Paragraph 2:**

“The alpha scan MDC calculations and upper prediction level calculations identified upper bounds on the alpha scan data in the 200 to 250 dpm/100 cm<sup>2</sup> range. MARSSIM (EPA et al., 2000) Section 5.5.2.4 provides for increasing the number of measurements performed in a survey unit to account for MDC values that do not achieve the survey objectives. The number of measurements in each survey unit was increased by a factor of 3 to allow for an alpha scan MDC as high as 300 dpm/100 cm<sup>2</sup>. A minimum of 54 alpha and beta static measurements were performed in each SU to account for the scan MDC not achieving the survey objective of measuring concentration below the specified release criteria and ILs. While the scan MDC for alpha scan surveys does not meet the project objectives, it still provides a technically defensible approach to surveys based on MARSSIM guidance.”

The special case mentioned in MARSSIM Section 5.5.2.4 (EPA et al., 2000) does not apply to the survey results reported in this document because the scanning survey covered only ~25% of the accessible area. The area factor and

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additional statics measurement discussed in MARSSIM Section 5.5.2.4 can only be applied to a Class 1 area that is fully scanned (100%). This Class 1 requirement is mentioned in MARSSIM multiple times. Only in the case of the scan survey covering the entire available surface, like in a Class 1 site, the additional static data points may supplement necessary statistics for the scan MDC not achieving the survey objective.

As mentioned in General Comment #2, CDPH-EMB will not consider the alpha scan survey data presented in this scoping report for evaluating any unrestricted release request from Navy.

**10. Appendix E “Radiological Instrument Quality Control Documents”:**

To provide proper documentation and accountability, please include the name or signature of the technician and person of validation for those instrument quality control documents on pages, not limited to, E-41 to E-50, E-58, E-61, E-63, E-66, E-68, E-71, E-74, E-76, E-78 to E-88 in Appendix E.